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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/814,082 03/10/97 TAKAHASHI

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MMC1/0227
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EXAMINER

NGO, H

ART UNIT

PAPER NUMBER

2871

DATE MAILED:

02/27/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/814,082

Applicant(s)

Takahashi et al.

Examiner

Julie-Huyen L. Ngo

Group Art Unit

2871

☒ Responsive to communication(s) filed on Nov 21, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-29 is/are pending in the application.

Of the above, claim(s) 5, 8-12, 16, and 19-29 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-4, 6, 7, 13-15, 17, and 18 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Nov 21, 2000 is ☒ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4 and 6

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Specification

The disclosure is objected to because it does not include the reference sign (15p) which ✓
added to figure 13 (drawing changes filed November 21, 2000).

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7, 13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable
over Applicant's admitted prior art in view of Kishigami (US 5,467,210).

As to claims 1, 2 and 13, Applicant's admitted prior art discloses in figure 13 a display
apparatus having a connection structure comprising:

- a first substrate (1bp) having electrode terminals (12p) formed thereon;
- a semiconductor device (5p) having first/output electrodes and second/input electrodes;
with the first electrodes connected to the electrode terminals (12p);
- a flexible wiring member (4ap) having thereon a pattern of conductors each extending
from a first end and second end on the flexible wiring member with the first ends of the
conductors connected to the second electrodes of the semiconductor device (5p); and
- a circuit board (3p) connected to the second ends of the semiconductors (5p) on the
flexible wiring member (4ap).

However, the semiconductor device (5p) in Applicant's admitted prior art does not have
the first/output electrodes directly connected to the electrode terminals (12p) of the first substrate
(1bp);

Kishigami teaches (abstract, col. 5, lines 57-67 and figure 4) connecting electrode terminals (14a, 17a, 20a) of the substrate (13) directly to the corresponding bumps (41) of electrodes (26, 27 and 28) of the semiconductor device (21) for reducing the manufacturing cost.

Therefore, it would have been obvious to one of ordinary skill in the art to connect the first/output electrodes ^{of the semiconductor device (5p)} directly to the electrode terminals (12p) of the first substrate (1bp), as taught by Kishigami, in the device of Applicant's admitted prior art for reducing manufacturing cost.

Although the circuit board (3p) in the applicant's admitted prior art device does not show the electrode terminals connected to the second ends of the conductors, it is well known in the art for a circuit board to have electrode terminals formed thereon for making electrical contacts between the circuit board and the flexible wiring member or any other connecting boards.

As to claims 3 and 14, it is well known and conventional in the art to have the electrode terminals of different panels/boards, e.g., a flexible tape carrier package (FTC) and driver IC or Printed Circuit Board (PCB), connect to each other by tape-automated bonding method (admitted by Applicant on page 1, line 25). Therefore, it would have been obvious for the electrode terminals of the semiconductor device (5p) connected to the first conductor ends of conductors (17) on a flexible wiring member (4ap) by tape-automated bonding method.

As to claims 7 and 18, the connecting part between the second electrodes of the semiconductor device (5p) and the first conductor ends of the conductors on the flexible wiring member (4ap) is sealed with a resin (16p).

Claims 4, 6, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Kishigami, as applied above, and further in view of Hirai (US 5,311,341).

Hirai teaches (figure 1b and col. 4, lines 63-69) that it is easy to replace or disconnect a defected TAB 4 from the liquid crystal panel by having the electrode terminals of the TAB 4 connected to electrode terminals 2 of the liquid crystal display panel by means of the anisotropic conductive adhesive (9).

Furthermore, it is well known in the art to have electrode terminals of two different panels/boards connecting with each other solely by an anisotropic conductive adhesive for easy replacement or detachment of defected panels/boards, as evidenced by Kishigami (col. 5, lines 51-54).

Therefore, as to claims 4 and 15, it would have been obvious for one of ordinary skill in the art to have the first electrodes of the semiconductor device (5p) connecting to the electrode terminals (12p) on the substrate (1bp) of the display panel solely by an anisotropic conductive adhesive, as taught by Hirai and Kishigami, in the modified device of Applicant's admitted prior art in view of Kishigami for easy replacement of defective panels/boards.

As to claims 6 and 17, it would have been obvious for one of ordinary skill in the art to have the second ends of the conductors (17) on the flexible wiring member (4ap) connecting to the electrode terminals on the circuit board (3p) by means of an anisotropic conductive adhesive in the device of Applicant's admitted prior art, as taught by Hirai and Kishigami for the above set forth reason.

Response to Remarks

Applicant's remarks with respect to claim 19 have been considered. Claim 19 is hereby withdraw from further consideration by the examiner, 37 CFR 1.142(b) as being drawn to a non-elected species.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Ngo, whose telephone number is (703) 305-3508.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

Papers related to this application may be submitted to Art Unit 2871 by facsimile transmission. The Art Unit's fax number is (703) 308-7721.

JHLN

February 24, 2001



William L. Sikes
Supervisory Patent Examiner
Group 2871